CLAIMS

1. A DNA sequence comprising as operably joined components in the direction of transcription, a cotton fiber transcriptional factor and an open reading frame encoding a protein of interest, wherein said transcriptional factor is selected from the 4-4 and the *rac* promoter sequences.

2. The DNA Sequence according to Claim 1, further comprising a transport signal encoding sequence from a plant nuclear-encoded gene.

3. The DNA sequence according to Claim 2, wherein said transport signal encoding sequence comprises a plastid transit peptid.

4. The DNA sequence according to Claim 1, wherein said transport signal encoding sequence encodes a signal peptide which provides for transport across the rough endoplasmic reticulum.

5. The DNA sequence according to Claim 4, wherein said sequence further comprises, 3' to said open reading frame, a vacuolar localization signal.

6. The DNA sequence of Claim 1 wherein said pigment is melanin or indigo.

7. The DNA sequence of Claim 6 wherein said open reading frame is from a bacterial gene.

8. The DNA sequence of Claim 7 wherein said bacterial gene is selected from the group consisting of ORF438, *tyr*A, anthocyanin R gene, anthocyanin C1 gene, *pig*, and *tna*.

9. A DNA construct comprising a promoter for transcription in a plant cell operably joined to said DNA sequence of Claim 1.

10. The DNA construct of Claim 9 wherein said plant cell is a cotton fiber cell.

11. The DNA construct of Claim 10 wherein said promoter is a tomato 4-4 and rac promoter.

~~12~~ 13. A plant cell comprising a DNA construct of Claim 9.

13 ~~14~~. A plant comprising a cell of Claim ~~13~~ 12.

14 ~~15~~. A method of modifying fiber phenotype in a cotton plant, said method comprising:

transforming a plant cell with DNA comprising a construct for expression of a protein in a pigment biosynthesis pathway, wherein said construct comprises as operably joined components:

a transcriptional initiation region functional in cells of said plant tissue,

an open reading frame encoding a protein of interest, and

a transcriptional termination region functional in cells of said plant tissue,

wherein said plant tissue comprises a substrate of said protein; and

growing said plant cell to produce a plant comprising said tissue, wherein said protein reacts with said substrate to produce said pigment.

15 ~~16~~. The method of Claim ~~15~~ 14 further comprising a transport signal encoding sequence from a plant nuclear-encoded gene.

16 ~~17~~. The method of Claim ~~15~~ 14 wherein said transport signal encoding sequence encodes a signal peptide which provides for transport across the rough endoplasmic reticulum.

17 ~~18~~. The method of Claim ~~16~~ 15 wherein said DNA comprises constructs for expression of two proteins in a pigment biosynthesis pathway, wherein each of said constructs comprises components i) through iv), and wherein said two proteins are not encoded by the same gene.

18 ~~19~~. The method of Claim ~~17~~ 16 wherein said DNA comprises constructs for expression of two proteins in a pigment biosynthesis pathway, wherein each of said constructs comprises components i) through iv), and wherein said two proteins are not encoded by the same gene.

19 ~~20~~. The method of Claim ~~18~~ 17 or ~~19~~ 18 wherein said pigment is melanin and said proteins are encoded by *tyr*A and ORF438.

20 ~~21~~. The method of Claim ~~18~~ 17 wherein said pigment is indigo and said proteins are *tna* and *pig*.

21 ~~22~~. The method of Claim ~~18~~ 17 wherein said pigment is anythocyanin and said constructs comprise the anthocyanin R and C1 regulatory genes.

22 ~~23~~. The method of Claim ~~15~~ 14 wherein plant tissue is a cotton burr.

23 ~~25~~. A recombinant DNA construct comprising the cotton tissue transcriptional sequence shown in Figure 2.

24 ~~26~~. A recombinant DNA construct comprising the cotton tissue transcriptional sequence shown in Figure 5.

25 ~~27~~. An isolated DNA encoding sequence of Figure 1.

28. An isolated DNA encoding sequence of Figure 4.

29. The method of Claim 15 wherein said protein of interest is involved in the synthesis of a plant hormone.